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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/767,121	01/29/2004	Zhiping ("James") Zhou	A185 1010.3	4432

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EXAMINER

CONNELLY CUSHWA, MICHELLE R

ART UNIT PAPER NUMBER

2874

DATE MAILED: 10/19/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/767,121

Applicant(s)

ZHOU, ZHIPING ("JAMES")

Examiner

Michelle R. Connelly-Cushwa

Art Unit

2874

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-38 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1, 13-23 and 31-38 is/are rejected.
- 7) ☒ Claim(s) 2-12 and 24-30 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 29 January 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. ____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. ____. |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>0105</u> . | 6) <input type="checkbox"/> Other: ____. |

DETAILED ACTION

Information Disclosure Statement

The prior art documents submitted by applicant in the Information Disclosure Statement filed on January 31, 2005 have all been considered and made of record (note the attached copy of form PTO-1449).

Drawings

Five (5) sheets of formal drawings were filed on January 29, 2004 and have been accepted by the Examiner.

Specification

The abstract of the disclosure is objected to because the abstract contains more than 150 words. Correction is required. See MPEP § 608.01(b).

The disclosure is objected to because of the following informalities:

-- now Patent No. 6,718,093,-- should be inserted after "October, 28, 2002" in paragraph [0001].

Appropriate correction is required.

Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

Claim Objections

The numbering of claims is not in accordance with 37 CFR 1.126 which requires the original numbering of the claims to be preserved throughout the prosecution. When claims are canceled, the remaining claims must not be renumbered. When new claims are presented, they must be numbered consecutively beginning with the number next following the highest numbered claims previously presented (whether entered or not).

Misnumbered claims 35 and 37-40 have been renumbered 34 and 35-38, respectively.

Claim 24 is objected to because of the following informalities:

Regarding claim 24; "glazed" in line 2 of the claim should be --blazed--.

Appropriate correction is required.

Double Patenting

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claims 1, 13-22 and 31-38 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 7, 10-16

of U.S. Patent No. 6,490,393 B1. Although the conflicting claims are not identical, they are not patentably distinct from each other because from each other because claims 7-16 of US Patent No. 6,490,393 B1 at least disclose or suggest all of the limitations of claims 1, 13-22 and 31-38 of the present application.

The device as claimed in claims 7-16 of U.S. Patent No. 6,490,393 B1 can not be made by another and materially different process than the process as claimed in claims 1, 13-22 and 31-38 of the present application and the process of claims 1, 13-22 and 31-38 of the present application can not be used to make another or materially different device because these claims recites fabricating, coupling and forming the elements defined in claims 7-16 of U.S. Patent No. 6,490,393 B1. Thus, the method for manufacturing defined in claims 1, 13-22 and 31-38 of the present application is not patentably distinct from the apparatus defined in the claims of U.S. Patent No. 6,490,393 B1.

Regarding claim 1; claims 7-15 of U.S. Patent No. 6,490,393 B1 defined an integrated optical demultiplexer that is inherently made by the method comprising:

- fabricating/forming an array of optical detectors on the substrate based on a predetermined optical detector design analysis (see lines 1-6 of claim 7);
- fabricating/forming a signal conditioning circuit on the substrate adjacent to the array of optical detectors and coupling the signal conditioning circuit to the array of optical detectors (see lines 7-9 of claim 7);

- forming a first layer of optically transparent material on the substrate covering/overlying the array of optical detectors and the signal conditioning circuit (see lines 10-13 of claim 7);
- fabricating/forming a binary blazed grating on the first layer (at the interface of the first and second layers) of optically transparent material (see lines 21-29 of claim 7); and
- forming a second layer of optically transparent material over the first layer and binary blazed grating to form an optical waveguide for diffracting incident light (see lines 14-17 and 26-29 of claim 7 and claim 14).

Regarding claims 13-15, 32, 33; see claims 7, 11-13 and 16 of U.S. Patent No. 6,490,393 B1.

Regarding claims 16-18, 34-36; see claims 7, 10 and 16 of U.S. Patent No. 6,490,393 B1.

Regarding claim 19; see claim 7 of U.S. Patent No. 6,490,393 B1.

Regarding claim 20; see claim 14 of U.S. Patent No. 6,490,393 B1.

Regarding claim 21; see claim 15 of U.S. Patent No. 6,490,393 B1.

Regarding claim 22; see claim 7 of U.S. Patent No. 6,490,393 B1.

Regarding claim 31; see claim 16 of U.S. Patent No. 6,490,393 B1.

Regarding claims 37 and 38; see claims 7 and 16 of U.S. Patent No. 6,490,393 B1.

Claims 1, 13-23 and 31-38 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1, 5-12, 14-21, 24-28 of U.S. Patent No. 6,718,093 B2. Although the conflicting claims are not identical, they are not patentably distinct from each other because claims 1, 5-12, 14-21, 24-28 of U.S. Patent No. 6,718,093 B2 at least disclose or suggest all of the limitations of claims 1, 13-23 and 31-38 of the present application.

Method steps of fabricating and/or forming inherently include placing and/or positioning and/or adding and/or configuring steps.

Regarding claim 1; see claims 1 and 12 of U.S. Patent No. 6,718,093 B2.

Regarding claim 13; see claim 5 of U.S. Patent No. 6,718,093 B2.

Regarding claim 14; see claim 6 of U.S. Patent No. 6,718,093 B2.

Regarding claim 15; see claim 7 of U.S. Patent No. 6,718,093 B2.

Regarding claim 16; see claim 9 of U.S. Patent No. 6,718,093 B2.

Regarding claim 17; see claim 10 of U.S. Patent No. 6,718,093 B2.

Regarding claim 18; see claim 11 of U.S. Patent No. 6,718,093 B2.

Regarding claim 19; see claim 14 of U.S. Patent No. 6,718,093 B2.

Regarding claim 20; see claim 15 of U.S. Patent No. 6,718,093 B2.

Regarding claim 21; see claim 16 of U.S. Patent No. 6,718,093 B2.

Regarding claim 22; see claim 17 of U.S. Patent No. 6,718,093 B2.

Regarding claim 23; see claim 18 of U.S. Patent No. 6,718,093 B2.

Regarding claim 31; see claim 19 of U.S. Patent No. 6,718,093 B2.

Regarding claim 32; see claim 20 of U.S. Patent No. 6,718,093 B2.

Regarding claim 33; see claim 21 of U.S. Patent No. 6,718,093 B2.

Regarding claim 34; see claim 24 of U.S. Patent No. 6,718,093 B2.

Regarding claim 35; see claim 25 of U.S. Patent No. 6,718,093 B2.

Regarding claim 36; see claim 26 of U.S. Patent No. 6,718,093 B2.

Regarding claim 37; see claim 27 of U.S. Patent No. 6,718,093 B2.

Regarding claim 38; see claim 28 of U.S. Patent No. 6,718,093 B2.

Allowable Subject Matter

Claims 2-12 and 24-30 objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter: The prior art cited on the Information Disclosure Statement filed by Applicant is the most relevant prior art known, however, the invention of claims 2-12 and 24-30 distinguishes over the prior art of record for the following reasons.

Regarding claim 2; the claim is allowable over the prior art of record because none of the references either alone or in combination disclose or render obvious a method as defined in claim 2, wherein a thickness of the first layer of optically transparent material is determined based on a specific application for the optical demultiplexer in combination with the limitations of the base claim.

Regarding claims 3-11; the claims are allowable over the prior art of record because none of the references either alone or in combination disclose or render obvious a method as defined in claim 3, wherein the array of optical detectors is formed

on silicon P-I-N structure in combination with the limitations of the base claim. Claims 4-11 depend from claim 3.

Regarding claim 12; the claim is allowable over the prior art of record because none of the references either alone or in combination disclose or render obvious a method as defined in claim 12, wherein a length for each optical detector is determined based on a predetermined output optical pattern from the binary blazed grating in combination with the limitations of the base claim.

Regarding claims 24 and 25; the claims are allowable over the prior art of record because none of the references either alone or in combination disclose or render obvious a method as defined in claim 24, wherein the step of fabricating a binary blazed grating on the first layer comprises the steps of designing a hard mask for the binary blazed grating through a simulation in combination with the limitations of the base claim. Claim 25 depends from claim 24.

Regarding claim 26; the claim is allowable over the prior art of record because none of the references either alone or in combination disclose or render obvious a method as defined in claim 26, wherein the step of forming a second layer of optically transparent material is performed via a low-pressure chemical vapor deposition in combination with the limitations of the base claim.

Regarding claim 27; the claim is allowable over the prior art of record because none of the references either alone or in combination disclose or render obvious a method as defined in claim 27, further comprising the step of planarizing the second

layer of optically transparent material in combination with the limitations of the base claim.

Regarding claim 28; the claim is allowable over the prior art of record because none of the references either alone or in combination disclose or render obvious a method as defined in claim 28, further comprising forming the optical waveguide using a conventional planar light circuit process to manipulate the path of the incident light in combination with the limitations of the base claim.

Regarding claim 29; the claim is allowable over the prior art of record because none of the references either alone or in combination disclose or render obvious a method as defined in claim 29, further comprising exposing a plurality of contact pads of the signal conditioning circuit via lithography and etching in combination with the limitations of the base claim.

Regarding claim 30; the claim is allowable over the prior art of record because none of the references either alone or in combination disclose or render obvious a method as defined in claim 30, further comprising placing interdigitated electrodes on each optical detector during fabrication of the signal conditioning electronics in combination with the limitations of the base claim.

Hence, there is no reason or motivation for one of ordinary skill in the art to use the prior art of record to make the invention of claims 2-12 and 24-30.

Conclusion

Art Unit: 2874

Any inquiry concerning the merits of this communication should be directed to Examiner Michelle R. Connelly-Cushwa at telephone number (571) 272-2345. The examiner can normally be reached 9:00 AM to 7:00 PM, Monday-Thursday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Rodney B. Bovernick can be reached on (571) 272-2344. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Any inquiry of a general or clerical nature should be directed to the Technology Center 2800 receptionist at telephone number (571) 272-1562.


Michelle R. Connelly-Cushwa
Patent Examiner
October 14, 2005